Amendments to the Claims

1 (Currently Amended) A method for preventing routing loops from forming when joining a node to ~~an MPLS~~ a Multi-Protocol Label Switching tree, comprising the steps of:

a) obtaining at a label switching router (LSR)a label mapping for a forwarding equivalency class (FEC);

b) determining if previous bindings exist for said FEC;

c) determining if said joining node is a signal node or a parent node of a subtree:

d) accepting the mapping for said single node if no previous bindings exist; and

if said previous bindings exist when said subtree is attached to said ~~MPLS~~ Multi-Protocol Label Switching tree:

e) sending a label splice message (Lsm) from said LSR to a root-node on a label switched path and returning a label splice message acknowledgement (ACK) to said LSR, and

f) accepting the mapping after receiving said ACK at said LSR;

g) terminating any further action if said LSR is waiting for a previous ACK message,

h) forwarding said Lsm to the next LSR if said LSR is not waiting for said previous ACK message.

2. (Currently Amended) A method for avoiding routing loops from forming when a node of a subtree is grafted to ~~an MPLS~~ a Multi-Protocol Label Switching tree, comprising the steps of:

a) receiving a label binding message at said node, said label binding including a label and a forwarding equivalency class (FEC);

b) if a label mapping request for the same FEC was not previously received at said node, sending a label splice message (Lsm) towards the root of said ~~MPLS~~ Multi-Protocol Label Switching tree along a labelled path;

c) generating a splice acknowledgement message (ACK) by said root node in response to said Lsm;

d) declaring loop-free and accepting said binding if said node is not waiting for a previous ACK corresponding to a previously received Lsm and said ACK returns to said node on the same said labelled path; and

e) informing all member nodes said subtree was grafted to said ~~MPLS~~ Multi-Protocol Label Switching tree.

3. (Currently Amended) The method of Claim 2, wherein said ~~MPLS~~ Multi-Protocol Label Switching tree comprises a unidirectional shared tree.

4. (Previously Presented) The method of Claim 3, wherein said root of said unidirectional shared tree comprises an ingress node of said unidirectional shared tree if the core node is not included in said unidirectional shared tree.

5. (Currently Amended) The method of Claim 2, wherein said ~~MPLS~~ Multi-Protocol Label Switching tree comprises a source tree.

6. (Previously Presented) The method of Claim 5, wherein said root of said source tree comprise an ingress node of said source tree.

7. (Currently Amended) The method of Claim 2, wherein said ~~MPLS~~ Multi-Protocol Label Switching tree comprises a bidirectional shared tree.

8. (Previously Presented) The method of Claim 7, wherein said root of said bidirectional shared tree comprises the node closest to the core if said core node is not included in said bidirectional shared tree.

9. (Currently Amended) The method of Claim 2, wherein said ~~MPLS~~ Multi-Protocol Label Switching tree comprises a multipoint to point tree.

10. (Currently Amended) The method of Claim 2, wherein said ~~MPLS~~ Multi-Protocol Label Switching tree comprises a point to multipoint tree.

11. (Previously Presented) The method of Claim 2, wherein whenever there is a label mapping request for same said FEC at said node, the following substeps are performed after step (a):

- merging label mapping requests; and
- stop forwarding said Lsm.

12. (Previously Presented) The method of Claim 2, wherein, if said ACK is not received back by said node while said node is waiting to receive said previous ACK, terminating grafting procedures after performing step (c).

13. (Previously Presented) The method of Claim 2, wherein, if said ACK is not received back by said node and said node is not waiting to receive said previous ACK, forwarding said Lsm after performing step (c).

14. (Previously Presented) The method of Claim 2, wherein said label splice message contains a message identifier and the address of a node which originates said label splice message, and said generating step generates the splice acknowledgement message having the message identifier and the address contained in the corresponding label splice message.

15. (Previously Presented) The method of Claim 14, further comprising the step of distinguishing a latest splice acknowledgement message from a previous splice acknowledgement message based on each message identifier

16. (Currently Amended) A method for preventing routing loops from forming when splicing subtree with ~~an MPLS~~ a Multi-Protocol Label Switching tree, comprising the steps of:

obtaining at a label switching router (LSR) a label mapping for a forwarding equivalency class (FEC);

determining if previous bindings exist for said FEC;

if said previous bindings exist, sending a label splice message from said LSR to a root-node on a label switched path;

returning a label splice message acknowledgement to said LSR on the same label switched path in response to the label splice message;

said sending step includes the step of forwarding said label splice message to a next LSR when not waiting for a previous label splice acknowledge message from said root-node and terminating any further action when waiting for said previous label splice acknowledge message; and

splicing said subtree with said ~~MPLS~~ Multi-Protocol Label Switching tree when said label switching router originating said label splice message receives said label splice acknowledgement message.

17. (Currently Amended) The method of Claim 16, wherein said splicing step includes the step of sending said label mapping when splicing a node of said subtree with ~~an MPLS~~ a Multi-Protocol Label Switching point to multipoint tree (p2mp).

18. (Currently Amended) The method of Claim 16, wherein said splicing step includes the step of accepting said label mapping when splicing a node of said subtree with ~~an MPLS~~ a Multi-Protocol Label Switching multipoint to point tree (mp2p).

19. (Previously Presented) The method of Claim 16, wherein said label splice message contains a message identifier and the address of a node which originates said label splice message, and said generating step generates the splice acknowledgement message having the message identifier and the address contained in the corresponding label splice message.

20. (Previously Presented) The method of Claim 19, further comprising the step of distinguishing a latest splice acknowledgement message from a previous splice acknowledgement message based on each message identifier